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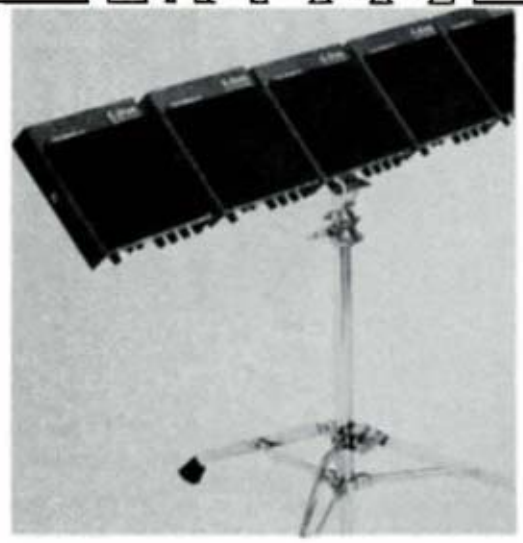

E-DRUM

The E-Mu Systems Inc. *E-Drum* is a single-pad, touch-sensitive, self-contained, digital percussion module (if you can say all that at once, read on and I'll explain), capable of producing many different and very realistic percussion sounds. The *E-Drum* is a 7.2" high by 7.2" wide by 1.3" deep rectangular box, with all the S lectronics inside. The striking surface is a black rubber pad affixed to the top of the box itself; the pad has a very good feel (for an electronic drum). The *E-Drum's* sounds come from a specific instrument or sound recorded digitally in computer code and stored on a little I.C. (Integrated Circuit) chip. This particular I.C. is called a PROM (Programmable Read-Only Memory) or EPROM (Erasable Programmable Read-Only Memory). With the latter, it is possible (with the right equipment) to erase your recorded sound and re-record a different one. This PROM is mounted on a small circuit board, which in turn is mounted inside a small cartridge (about the size of an Atari game cartridge or Yamaha *DX-7* Ram cartridge). This cartridge is inserted into the back of the *E-Drum* and then becomes the unit's sound source. The cartridges are available with anywhere from one to four sounds contained inside, all accessible by means of the Sound Selector Buttons located on the front of the *E-Drum* (which will be discussed later).

At the time of this article's writing, the cartridges available include: four sounds of bass drum; two sounds of snare (one acoustic and one electronic); *RotoTom;* acoustic tom, electronic tom, timpani, gong, timbale, ride cymbal; two sounds of cowbell/woodblock; grand piano, handclaps, metal 1 and metal 2. The cartridges are quickly and effortlessly interchangeable for ease of application and diversity. A drummer could easily have one or two *E-Drums* with a full library of sound cartridges, and interchange cartridges at will. The sounds are then user-controllable ("user" is a term for the person using or operating a certain item or device) through a set of controls located at the front of the *E-Drum* itself. The unit was cleverly designed with the names of all controls printed on top of the drum right above each knob or button, thus giving the user instructions as to each function.

Functions

The function controls of the *E-Drum* include:

1. *Pitch.* Rotating the control knob clockwise raises the pitch of the sound. Rotating it counterclockwise lowers the pitch. The total range is approximately plus-or-minus one octave.

2. *Sound Selector Buttons.* There are two Sound Selector Buttons. They select which sound on a given I.C. will be played, as follows: both buttons out = sound number 1; left button in, right button out = sound number 2; left button out, right button in = sound number 3; both buttons in = sound number 4 (where applicable).

3. *Pitch Sensitivity.* Clockwise rotation of this knob increases pitch sensitivity (i.e., the harder you strike the pad, the higher the resulting pitch will be). With the knob turned fully counterclockwise, there will be no pitch change caused by the striking force, just a dynamic (volume) change.

4. *Decay.* When this knob is rotated fully clockwise, the sound is at its optimum length in time. Turning the knob counterclockwise will correspondingly shorten the length of the specific sound. (Note: Turning the Decay knob fully clockwise will not lengthen any given sound over its normal or natural sustained length, with the possible exception of the acoustic snare.)

5. *Bass And Treble.* Two very active, very definite tone controls (plus-or-minus 15 dB) are provided to adjust any particular sound to the optimum result for the user's taste.

6. *Sensitivity Control.* The Sensitivity Control is a very small, recessed screwhead located on the front panel between the Pitch Control and the Sound Selector Buttons. E-Mu Systems recommends that you don't fiddle with it; they even go to the extent of putting a camouflage sticker over the hole to try to hide it. But I feel that the user must adjust this control to his or her personal taste, taking into account stick size, playing force, technique, etc., in order to get the full dynamic expression range of the *E-Drum.* I do recommend using the *E-Drum* for a couple of weeks or more before even attempting to adjust the sensitivity—especially if this is your very first electronic percussion device. Remember that this is something different from what you are used to on your real drums, and you need a little time to master it to its full potential. Only then should you attempt adjustment.

When adjustment is necessary, the "pot" (short for "potentiometer") offers a full 15-turn adjustment range; one half-turn at a time is generally sufficient. But make sure to keep track of your turns, in either direction, so you can always relocate back to the "zero point"—the factory setting. Use that as your standard.

The Rear Panel

On the rear of the unit are the following connections and controls:

1. *DC In.* This is a connection for voltage input from an optional transformer.

2. *Battery/DC Transformer Selector Button.* This switch selects between power supplies. *(E-Drums* can operate on two 9-volt transistor-type batteries or an optional AC/DC adapter, which can power up to five *E-Drums.* When running the *E-Drum* off of batteries, the Power Selector Button acts as an on/off switch to turn off the battery and save its power.

3. *Cartridge Slot.* This is the cavity in which Sound Cartridges are inserted. (Note: Cartridges are keyed to prevent improper insertion.)

4. *Trigger In.* This is actually a two-function port. The Trigger Input can be used as a pitch controller, which overrides the Pitch Control on the front of the *E-Drum.* A voltage control pedal, such as a

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by Reek Havok and Bob Saydlowski, Jr.

Moog O-to-5-volt Voltage Pedal plugs into the Trigger Input's 1/4" stereo jack. You can then control the pitch of the sound you're using by your foot, via the pedal (similar to a timpani's tuning pedal). As a second feature, the *E-Drum* can be dynamically triggered via the same jack by a synthesizer voltage pulse (commonly referred to as a "gate" or "voltage gate"), a prerecorded drum track from tape, or a contact mic' applied to a "real" drum. The tip of the stereo plug is the trigger, the ring of the plug is for the pitch, and the main stem of the plug is the ground. I am told that, by using the correct hookup, both the trigger and the pitch control can be used at the same time, using a common ground.

E-Mu Systems also offers a Bass Drum Trigger, which is actually a Drum Workshop practice bass drum setup, with a contact mic' attached to it. A 1/4" plug connects the mic' to the Trigger Input of any *E-Drum.*

5. *Audio Out.* This is the jack used to hook a standard 1/4" plug (such as a guitar-type cord) from the *E-Drum* to the amplifier or mixing board.

6. *DC Out.* The DC Output jack is used as a hookup for the AC adapter to power up to five separate *E-Drums* from one power supply. The DC cord is plugged in from the DC Out of one drum into the DC In on the next drum.

Playability

The *E-Drum* is a very exciting instrument to play. The touch sensitivity is one of the key qualities of the drum; it's almost like playing "real" drums. I had the opportunity to play a full set of nine *E-Drums.* The cartridges I had inserted were as follows: one Rock Ride Cymbal; one Double Sound Snare; one Four Sound Bass Drum; one Gong, two Electric Toms, one Cowbell/Woodblock; one *RotoTom;* and one Metal 2.

The expressiveness I was able to achieve was very enlightening. As some of you probably know already, most of the electronic drums on the market today are a far cry from total touch sensitivity, such as we're used to on "real" drums. ("Touch sensitivity" is expressed here as the ability to get a quieter or louder sound from a particular instrument by striking the playing surface with more or less force.) The *E-Drum* is the most touch-sensitive of any electronic drums I have played, making for total creative control by the user.

E-Mu's digitally sampled drums are very realistic, with excellent sound quality. They have even figured out a way to make the gong sustain for up to eight seconds. (For those who see nothing exciting in this, let me say that the major problem with digitally recorded sounds is the sample length. You are always limited as to how much memory your PROM can hold, as far as time is concerned. Typically, time is perhaps one second or less, so an eight-second sound is a luxury.) The metal sounds are a bit rude and trashy. Drummers love them, but they're the type of sounds that make other members of the band shrug their shoulders and squint their eyes.

The *E-Drums* mount on a small L-shaped metal piece, which is supplied with each unit. This, in turn, mounts on standard *RotoTom* hardware. The mounting system for the *E-Drum* is sufficient at best; it works. With the Remo *AD-100 Universal Adapter* and a little imagination, I was able to mount the *E-Drums* in a convenient, accessible place on my kit.

The *E-Drum* is a pleasant surprise on the electronic percussion market. This seemingly new product (which is almost two years old) is probably one of the industry's best-kept secrets, and I highly recommend that anyone interested in electronic percussion check it out. The list price for the basic *E-Drum* is $299.00. Options include an AC Power Adapter ($10.00), Bass Drum Trigger ($60.00), and various additional Sound Cartridges ($50.00 each). *—Reek Havok*

DESERT DRUMS

Cactus electronic *Desert Drums* have EPROM-based, real, digital sounds. The drum pads are 12" in diameter and 2 1/2" deep. They are constructed of plastic and have round, rubberized playing surfaces. The bass drum has a 20" diameter, and 4" depth with the pedal-mounting bracket attached. It is supported by two long, L-shaped spike tubes that locate into hidden eye bolts within the pad shell. All the other pads are able to fit onto L-arm holders or floor stands.

The Cactus control board can hold ten separate sound modules. Toms, bass, snare, claps, gong, cabasa, claves, tambourine, hi-hat, crash cymbal, ride cymbal, and synthesizer are available. The modules will plug in or out of the board easily with the aid of a screwdriver, so one can configure the setup to one's own needs. The basic *MK-2* "starter" kit includes snare, bass, and three toms, all with cables. Extra modules range from $210 to $340 each.

Each module has controls for volume, stereo pan, sensitivity, pitch, and decay, but there are differences between each sound module. The bass drum offers a choice of two different voices; however, the single pitch control works both. One bass drum is a studio-tight sound; the other is more open and thumpy. The snare has controls for filter frequency and resonance, plus a noise/tone mix. The hi-hat module also has these controls, plus filter sweep, pedal level, and open and closed decays. A noise mix control is added onto the cymbal, gong, and claps modules. The synth module has impact click level, noise level, frequency sweep and resonance, tone level, pitch and bend, and a control called "feedthrough," which shapes the attack by adding the acoustic sound of the trigger signal. There is no capacity to store programmed sounds into memory for recall; all sounds must be manually dialed in each time a change is desired.

The hi-hat module comes with a rocker-type foot pedal to simulate a real hi-hat pedal. Depressing the pedal gives a closed hi-hat sound on the corresponding pad; raising the pedal "opens" the hi-hats. On the unit provided, I found that, at times, the pedal caused some severe noise leakage after being depressed and let up. I feel that the pedal's travel is a bit too much, but you could get used to it.

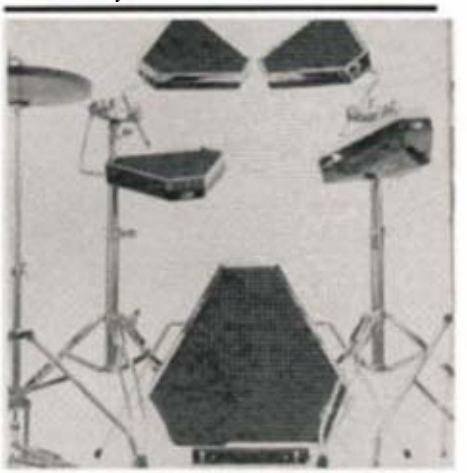
All the pads accept XLR connectors, and the board has individual 1/4" pad inputs and outputs, as well as main left and right stereo outputs. (They can also be used for mono.) There is a master stereo output volume and a headphone jack with separate volume control.

All the Cactus sounds are real, digitally encoded sounds, and are very similar to the *LinnDrum* (especially the toms). I liked all

the sounds very much. All the drums were capable of a wide tuning range, muffled or ringy. The cymbals have a nice brightness, although the ride is a little too dry for my taste. The hi-hats and ride die out well, but the crash could use a bit more memory space for the proper acoustic length. I was able to get some interesting electronic effects and Simmons-type drums from the synthesizer module.

The pads have dynamic response and a natural feel. The Cactus *Desert Drums* really have to be heard to be appreciated. If you've always wanted the sound of real drums and cymbals in an extremely portable electronic drumkit, the Cactus kit can recreate those sounds. For live or studio work, they certainly warrant some serious attention.

The basic five-piece kit retails at $1,950 without stands. Extra pads retail at $84 each. A five-drum setup with ride, crash, and hi-hats lists for $3,122. For more information, write C-Tape Developments, Inc., P.O. Box 1069, Palatine, IL 60078. *—Bob Saydlowski, Jr.*



ULTIMATE PERCUSSION K2X

The *K2X* is the big brother of Ultimate Percussion's *UP-5* kit (reviewed *MD:* May '85). Whereas the *UP-5* offered little user control over the sounds, the *K2X* has both preset and manual modes with detailed control dials. All pads with the kit are identical to the ones in the *UP-5:* triangular plastic shells with rubber surfaces. The pads will mount onto any L-arm holder.

The *K2X* board has eight channels producing analog sounds. Channels one through six are preset for tom-toms; channel seven is bass drum, and channel eight is snare. Each channel has a push button, allowing transfer from preset to manual control. Simultaneous switching is not available though, and the voices could use some LEDs for visual confirmation of mode setting. Each channel does, however, have an LED that lights when its pad is struck. While in preset mode, volume, pan, sensitivity, and decay can be user-controlled. The manual section of each channel has rotary dials for impact sound, noise filter, noise/oscillator balance, pitch, and sweep (up or down). On the snare, the impact control adds a rimshot-type sound. Manual controlling of the parameters allows a wide range of sounds to be set up: electronic and acoustic toms, timpani, cowbell, handclaps, tabla, etc.

One interesting feature is the *K2X's* micro-sequencer section, which has six 8-beat patterns all available via a click-stop dial: straight rock, funk/rock, funk, smooth rock, electro rock, and fast rock. A speed control sets the tempo of the patterns, and an LED marks the first beat of each pattern. In use, the sequencer triggers channels six, seven, and eight. Since channels seven and eight are already designated as bass and snare, channel six could be user-set as a hi-hat, tom-tom, handclap, laser gun, etc. The sequencer's patterns cannot be user-programmed, but they could be useful to play against or solo over. Basically, what we have here is a mini rhythm box!

The sequencer's speed control can also send a pulse to each separate channel on the board. A push button at each channel gives a repeating sound, whose length is set by the sequencer speed dial. This is very useful while setting up your sounds manually without having to hit the pads all the time.

The *K2X* board has a small mixer to control left and right master volumes, as well as left and right treble and bass EQ. A headphone jack and level control are also included. The rear of the board has 1/4" jacks for individual pad inputs and outputs, along with left and right master outputs. A thin bracket beneath the board can be used to mount it onto a stand.

All the preset sounds on the *K2X* are very modern sounding. The bass drum has good punch and thump; the snare has a nice "whap" to it, with a bit of noise mixed in for good measure. To me, the preset toms are somewhat of a cross between Simmons and muffled *RotoToms*\ By controlling the sounds manually, there is a lot of room for "customizing" your drumkit sounds, as well as producing synthesizer-type effects. As with all the other electronic kits reviewed in this series, your own ears should make the final decision. Just be sure not to leave out the *K2X,* as it is a worthy competitor with some unique features. Retail cost for the basic setup is $1,710. Ultimate Percussion is made in England, but is distributed in the *U.S.* through Charles Alden Music.*—Bob Saydlowski, Jr.*